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Characterisation of collections CL-Kl and CL-L1 and their role in the innate immune response

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The immune system is a collection of proteins, cells and other biological components that protect an organism against pathogenic microbes. It prevents an attack through a series of processes collectively called the immune response. The complement system is an essential part of the innate immune response. Complement is activated by three pathways: the Classical (CP), the Lectin (LP) and the Alternative pathways (AP). The LP is activated by a range of different pathogen-recognition receptors including collecting kidney-1 (CL-K1 aka CL-11) and collecting liver-1 (CL-L1 aka CL-10), which bind to pathogen-associated molecular patterns (PAMPs), to activate three MBL-associated serine proteases (MASPs). CL-K1 and CL-L1 play an important role in host defense by recognizing a range of pathogens. These proteins can activate the LP individually or as a hetero-oligomeric complex. The sugar specificity of CL-K1 has been analyzed recently, it binds to high-mannose type structures and a range of different fucose-containing sugars including Lewis antigens and Blood group antigens. Binding of the former have been characterized structurally but binding to fucose-containing structures has not. In addition, the sugar specificities of CL-L1 is unknown. Here we present structures highlighting the ligand binding by CL-L1 and CL-K1. CL-K1 is known to bind to mannose and fucose-containing sugars, which are commonly found on bacterial surfaces.

Biography

Luay AL-Kanan PhD student working with Professor Wallis group in molecular biology and complement related disease.

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